

*Please provide the following information, and submit to the NOAA DM Plan Repository.*

**Reference to Master DM Plan (if applicable)**

*As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.*

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

**1. General Description of Data to be Managed****1.1. Name of the Data, data collection Project, or data-producing Program:**

National Status and Trends: Bioeffects Program - St. Thomas East End Reserves (STEER) Database

**1.2. Summary description of the data:**

The purpose of this effort was to characterize the extent and magnitude of chemical contamination in the St. Thomas East End Reserves or STEER, as part of a larger project to develop an integrated ecosystem assessment for the STEER. The STEER is a collection of marine reserves and wildlife sanctuaries on the southeastern end of the island of St. Thomas, US Virgin Islands. Within the STEER, however, are a variety of land use and maritime activities that are thought to impact the Reserves. As part of a project requested by STEER managers and funded by CRCP, NCCOS/CCMA scientists conducted a field mission in June 2011 to the STEER, and collected sediments that were characterized for chemical contaminants. A broad suite of chemical contaminants were analyzed in sediment, coral (*Porites asteroides*) and conch (*Strombus gigas*) samples including polycyclic aromatic hydrocarbons (PAHs), chlorinated pesticides including DDT and its metabolites, polychlorinated biphenyls (PCBs), major and trace elements, and butyltins. This project provides valuable baseline data on sediment chemical contamination that is georeferenced and posted on the internet through the NOAAs National Status and Trends data portal.

**1.3. Is this a one-time data collection, or an ongoing series of measurements?**

One-time data collection

**1.4. Actual or planned temporal coverage of the data:**

2012

**1.5. Actual or planned geographic coverage of the data:**

W: -64.88215, E: -64.822678, N: 18.320947, S: 18.297247

**1.6. Type(s) of data:**

*(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)*

**1.7. Data collection method(s):**

*(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)*

**1.8. If data are from a NOAA Observing System of Record, indicate name of system:****1.8.1. If data are from another observing system, please specify:****2. Point of Contact for this Data Management Plan (author or maintainer)****2.1. Name:**

NCCOS Scientific Data Coordinator

**2.2. Title:**

Metadata Contact

**2.3. Affiliation or facility:**

National Centers for Coastal Ocean Science

**2.4. E-mail address:**

NCCOS.data@noaa.gov

**2.5. Phone number:****3. Responsible Party for Data Management**

*Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.*

**3.1. Name:**

NCCOS Scientific Data Coordinator

**3.2. Title:**

Data Steward

**4. Resources**

*Programs must identify resources within their own budget for managing the data they produce.*

**4.1. Have resources for management of these data been identified?****4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):****5. Data Lineage and Quality**

*NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.*

### **5.1. Processing workflow of the data from collection or acquisition to making it publicly accessible**

*(describe or provide URL of description):*

Process Steps:

- 2012-01-01 00:00:00 - Data Acquisition: The sediments and tissue samples for chemical contaminant analysis were collected using standard NOAA National Status and Trends (NSandT) Program protocols (Lauenstein and Cantillo, 1998; Apeti et al., 2012 Update). The NSandT Program is housed within NCCOS Center for Coastal Monitoring and Assessment (CCMA). The NSandT Program monitors the Nations estuarine and coastal waters for contaminants in bivalve mollusk tissues and sediments, and toxicity or bioeffects of sediments. A PONAR grab was deployed to collect the sediment samples using a pulley and davit, and retrieved by hand. Rocks and bits of seagrass were removed. If a particular grab did not result in 200-300 g of sediment, a second grab was made and composited with material from the first. If enough sediment had not been collected after three deployments of the grab, the site was abandoned and the boat moved on to an alternate site. Using this strategy, a total of 24 sediment samples were collected. A series of protocols were used to avoid contamination of the sediment samples by equipment and cross contamination between samples and sites. All equipment was rinsed with acetone and then distilled water just prior to use at a site. Personnel handling the samples also wore disposable nitrile gloves. The top 3 cm of sediment were collected from the grab using a stainless steel sediment scoop. This top layer of sediment is referred to as surficial sediment, and is typically indicative of recent deposition. Sediments were placed into two certified clean (I-Chem) 250 ml labeled jars, one for organic chemical analysis, the other for metal analysis, capped and then placed on ice in a cooler. Sediments for grain size analysis were placed in a WhirlPack bag, sealed and placed on ice in a cooler. At the end of each day, sediment samples for contaminant analysis were placed in a freezer; the WhirlPack bags for the grain size analysis were placed in a refrigerator rather than frozen, to avoid altering the grain size structure of the sediment. Sample Collection Investigators: Tony Pait, National Centers for Coastal Ocean Science; Ian Hartwell, National Centers for Coastal Ocean Science; Andrew Mason National Centers for Coastal Ocean Science; Rob Warner, National Centers for Coastal Ocean Science; Laurie Bauer, National Centers for Coastal Ocean Science, Biogeography Program Coral and conch tissue samples were collected based on the standard operation procedure described in Apeti et al, 2012. For conch sampling, two methods of collection were used. 1) Boat based onboard a Nature Conservancy vessel sampling via SCUBA or snorkeling, and 2) Kayak based sampling via snorkeling only. A total of 10 conch specimens were collected from 5 separate locations, one within each strata. At each location two organism were collected by hand and placed in labeled 2 gallon Ziplock bags. The bags containing the specimens were placed in a cooler of ice. At the end of the field mission, conch specimens were partially thawed and their soft tissues were

removed from their shells, weighed, and then placed into labeled 1 liter Teflon jars and refrozen. Once completely frozen, the samples were shipped with dry-ice to the analytical laboratory. At the lab. the two soft tissues were composited into a single tissue sample for each location before contaminant analysis.(continued...) | Source Produced: Sampling and Analytical Methods of the National Status and Trends Program Mussel Watch Project: 1993-1996 Update (Citation: Sampling and Analytical Methods of the National Status and Trends Program Mussel Watch Project: 1993-1996 Update)

- 2012-01-01 00:00:00 - (continued from above) The coral that was collected for this study was *Porites astreoides* (Lamarck 1816) common name mustard hill coral. This species was chosen because it is abundant and not endangered. The coral samples were collected by SCUBA diving using hammer and titanium or stainless steel coring punch. A sample location was defined as a single dive area with about 50 meter radius where enough *Porites astreoides* colonies (heads) were available for multiple sampling. Samples of *P. astreoides* were collected from five sites. Unlike the conch tissues, which only one set per location was collected for contaminant analyses, the coral tissues were collected in two sets, one for contaminant analyses and the other for histopathology measurements. - Sampling for contaminants analysis: At each location coral cores were collected from 5 different coral colonies (heads) to constitute a site-composite. Using hammer the titanium coring punch was driven into the coral colonies to extract coral cores of approximately 1.5 cm in diameter and 1-1.5 cm. Pieces of fractured coral cores were dislodged with Teflon stir stick and used as sample taking care to avoiding removal of large amounts of skeletal material. The cores of coral tissue were placed inside pre-labeled 250 ml IChem jars and then capped underwater. The jars were brought to the surface, drained of water and placed on ice. The samples were then preserved by freezing at -15 degree C until they were shipped overnight on dry-ice to the analytical laboratory. (end continuation) | Source Produced: Sampling and Analytical Methods of the National Status and Trends Program Mussel Watch Project: 1993-1996 Update (Citation: Sampling and Analytical Methods of the National Status and Trends Program Mussel Watch Project: 1993-1996 Update)

- 2012-01-01 00:00:00 - Sample Processing and Analysis: Sediment and tissue samples were analyzed for trace elements and organic contaminants. Methods Summary: All samples were analyzed by TDI-Brooks in College Station, TX following proven methods. TDI-Brooks International, Inc who has been performing the analyses since 2000 uses a modified version of EPA methods. Samples were prepared for inductively coupled plasma/mass spectrometry analysis (ICP-MS) for major metals (copper, cadmium, chromium, lead, manganese, nickel, antimony, and zinc) while atomic fluorescence spectrometry was utilized to measure arsenic and selenium and atomic absorption spectrometry was used for mercury analysis. For all metals, but Hg, sediment and tissue samples were digested by sequentially adding nitric acid and hydrogen peroxide to Teflon bombs to achieve sample dissolution in oven. For analysis of Hg, samples were digested based on a modified version of EPA method 245.5, using a concentrated H<sub>2</sub>SO<sub>4</sub> and HNO<sub>3</sub> digestion,

followed by addition of KMnO<sub>4</sub>, and K<sub>2</sub>S<sub>2</sub>O<sub>8</sub>, and the samples were again digested. For organic contaminants including butyltins, PAHs, PCBs, PBDEs and organochlorine-pesticides, sediment and tissue samples were first extracted. Homogenized samples were chemically dried with Hydromatix(TM). Tissue/Hydromatix(TM) mixtures were then extracted with 100% dichloromethane using accelerated solvent extraction (ASE) method. The extracts were then concentrated to 3 ml by evaporative solvent reduction. Silica gel/alumina column chromatography was utilized to concentrate and purify the samples before analysis. Quantitation of PAHs and their alkylated homologues was performed by gas chromatography mass spectrometry (GC/MS) in the selected ion monitoring (SIM) mode. Chlorinated hydrocarbons (chlorinated pesticides and PCBs) were quantitatively determined by capillary gas chromatography with an electron capture detector (ECD). Detailed extraction and analytical methods used by the MWP are available in Kimbrough and Lauenstein (2006). Quality control samples were processed with each batch of samples in a manner identical to the samples, including matrix spikes, method blank, duplicates and standard reference materials (SRMs). In total, approximately 5% of all analyses were QC analyses. Processing quality was considered acceptable if the following criteria were met: blanks were less than three times the minimum detection limit; accuracy, as determined by analysis of certified reference materials, was within 30% and precision, as determined by replicate analyses, was within 30% for organic analytes. | Source Produced: Sampling and Analytical Methods of the National Status and Trends Program Mussel Watch Project: 1993-1996 Update (Citation: Sampling and Analytical Methods of the National Status and Trends Program Mussel Watch Project: 1993-1996 Update)

**5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:**

**5.2. Quality control procedures employed (describe or provide URL of description):**

## **6. Data Documentation**

*The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.*

**6.1. Does metadata comply with EDMC Data Documentation directive?**

No

**6.1.1. If metadata are non-existent or non-compliant, please explain:**

Missing/invalid information:

- 1.6. Type(s) of data
- 1.7. Data collection method(s)

- 4.1. Have resources for management of these data been identified?
- 4.2. Approximate percentage of the budget for these data devoted to data management
- 5.2. Quality control procedures employed
- 7.1. Do these data comply with the Data Access directive?
  - 7.1.1. If data are not available or has limitations, has a Waiver been filed?
  - 7.1.2. If there are limitations to data access, describe how data are protected
- 7.3. Data access methods or services offered
- 7.4. Approximate delay between data collection and dissemination
- 8.1. Actual or planned long-term data archive location
- 8.3. Approximate delay between data collection and submission to an archive facility
- 8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

**6.2. Name of organization or facility providing metadata hosting:**

NMFS Office of Science and Technology

**6.2.1. If service is needed for metadata hosting, please indicate:****6.3. URL of metadata folder or data catalog, if known:**

<https://inport.nmfs.noaa.gov/inport/item/39199>

**6.4. Process for producing and maintaining metadata**

*(describe or provide URL of description):*

Metadata produced and maintained in accordance with the NMFS Data Documentation

Procedural Directive: <http://www.nmfs.noaa.gov/op/pds/documents/04/111/04-111-01.pdf>

**7. Data Access**

*NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.*

**7.1. Do these data comply with the Data Access directive?**

**7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?**

**7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:**

**7.2. Name of organization of facility providing data access:**

National Centers for Coastal Ocean Science

**7.2.1. If data hosting service is needed, please indicate:****7.2.2. URL of data access service, if known:**

<https://products.coastalscience.noaa.gov/collections/ltmonitoring/nsandt/default.aspx>

<https://products.coastalscience.noaa.gov/collections/ltmonitoring/nsandt/default.aspx>

**7.3. Data access methods or services offered:****7.4. Approximate delay between data collection and dissemination:**

**7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:**

**8. Data Preservation and Protection**

*The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.*

**8.1. Actual or planned long-term data archive location:**

*(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)*

**8.1.1. If World Data Center or Other, specify:****8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:****8.2. Data storage facility prior to being sent to an archive facility (if any):**

National Centers for Coastal Ocean Science - Silver Spring, MD

**8.3. Approximate delay between data collection and submission to an archive facility:****8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?**

*Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection*

**9. Additional Line Office or Staff Office Questions**

*Line and Staff Offices may extend this template by inserting additional questions in this section.*